



TRH514

RELATIVE HUMIDITY AND TEMPERATURE PROBE WITH 4 ÷ 20 mA OUTPUT



User manual

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PREFACE



This manual contains the information necessary for the product to be installed correctly and also instructions for its maintenance and use; we therefore recommend that the utmost attention is paid to the following instructions and to save it.

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Whenever a failure or a malfunction of the device may cause dangerous situations for persons, thing or animals, please remember that the plant has to be equipped with additional devices which will guarantee safety.

1. INSTRUMENT DESCRIPTION

1.1 General description

The probes of the **500** series are devices characterized by a very low energy consumption.

2. USAGE WARNINGS

2.1 Admitted usage



The instrument has been projected and manufactured as a measuring and control device to be used according to EN60730-1 at altitudes operation below 2000 m.

Using the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures.

The instrument **must not be used** in dangerous environments (flammable or explosive) without adequate protections.



The installer must ensure that the EMC rules are respected, also after the instrument installation, if necessary using proper filters.

3. INSTALLATION WARNINGS

3.1 Mounting requirements

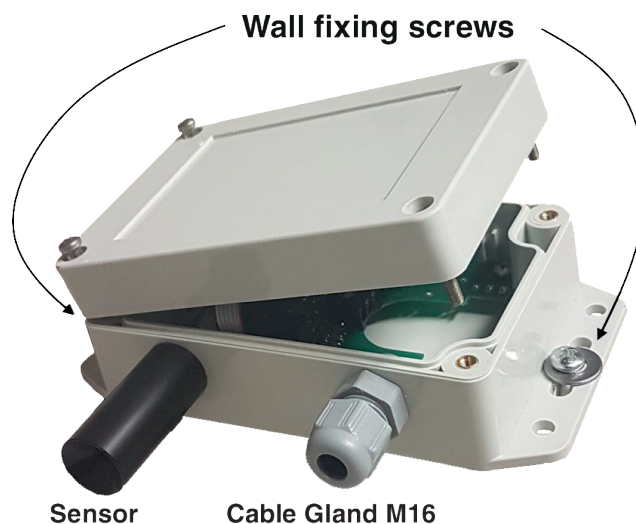
Select a mounting location having the following characteristics:

- It should be easily accessible;
- It must not be subjected to vibrations or impacts;
- Must be free from corrosive gases;
- Must be free from water or other fluids (condensation).

3.2 Installation position

Wall fixing is foreseen, horizontally with the sensor and cable facing downwards.

Designing the probe 500, an attempt was made to limit as much as possible the possibility of self-heating of the sensor, minimizing energy consumption and separating the sensor from the dissipative element.



Any error in humidity measurement may be due to the settling time of the probe, in this case it will be necessary to wait for the time necessary to achieve a stable measurement.

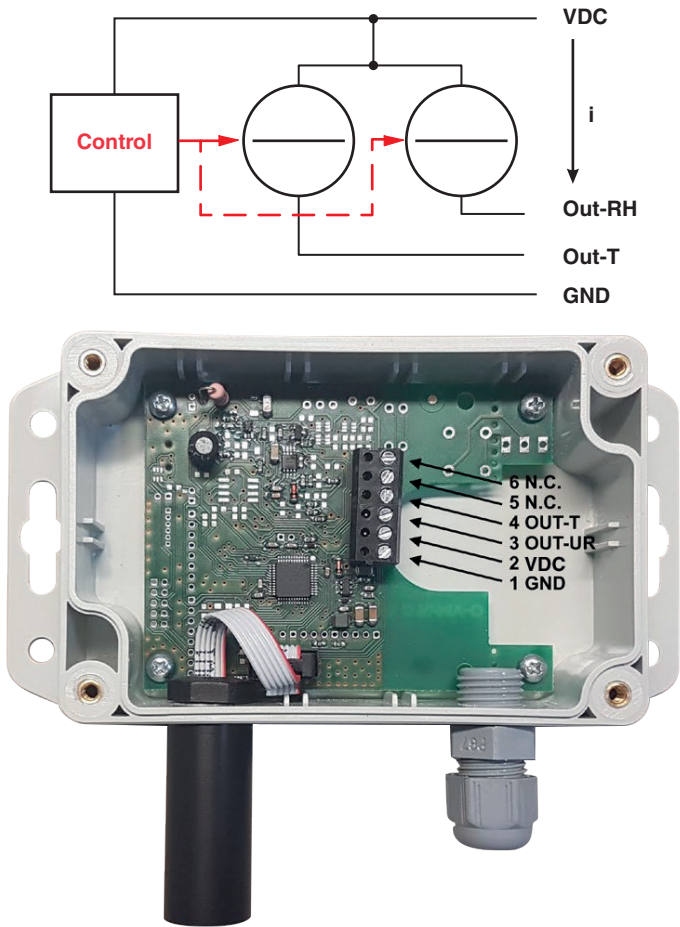
Steam jets, water sprays, drafts, direct sun exposure, condensation on the sensor or mounting on a wall made cold by the outside temperature can also cause important measurement errors; due to these conditions, during the installation, the probe must be protected from any possible external influence.

3.3 Electrical Connections

General notes on electrical connections

- The probe cables must be kept separated from high power voltage wiring;
- If shielded cables are used, the protection shield must be connected to ground at one side only.

3.3.1 Electrical wiring



Power supply voltage: 9 ÷ 30 VDC;
Current consumption: 20 mA + 20 mA max.;
Reverse polarity protection: Diode.

Sensor reading

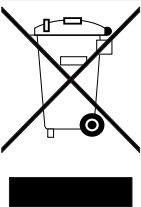
The output current is normally passed through the input resistance of the measuring instrument and transformed into a voltage that can be read by the instrument itself.

4. PROBLEMS AND MAINTENANCE

4.1 Cleaning

We recommend to clean the instrument with a slightly wet cloth using water and not abrasive cleaners or solvents only. Should it be necessary to remove the sensor, avoid to mechanical stress it and in particular avoid touching the humidity sensor.

4.2 Disposal



The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.

5. WARRANTY AND REPAIRS

The instrument is under warranty against manufacturing flaws or faulty material, that are found within 18 months from delivery date. The warranty is limited to repairs or to the replacement of the instrument.

The eventual opening of the housing, the violation of the instrument or the improper use and installation of the product will bring about the immediate withdrawal of the warranty effects. In the event of a faulty instrument, either within the period of warranty, or further to its expiry, please contact our sales department to obtain authorisation for sending the instrument to our company.

The faulty product must be shipped to Ascon Tecnologic with a detailed description of the faults found, without any fees or charge for Ascon Tecnologic, except in the event of alternative agreements.

6. TECHNICAL DATA

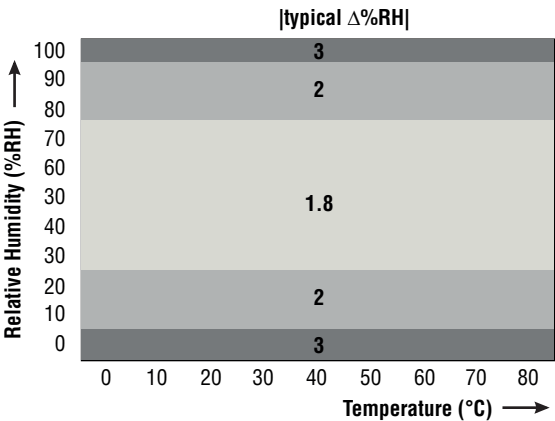
6.1 Sensor characteristics

Sensor type: CMOS-C.

6.1.1 Relative humidity

Parameter	Condition	Typical	Units
Accuracy/Tolerance	Typical	±1.8	%RH
	Max.	See figure	%RH
Repeatability	High	0.08	%RH
	Medium	0.15	%RH
	Low	0.25	%RH
Resolution	-	0.01	%RH
Hysteresis	-	±1	%RH
Operative range	Extended	0 ÷ 100	%RH
Response time	τ63%	6	s
Long-term drift	Typical	<0.25	%RH/year

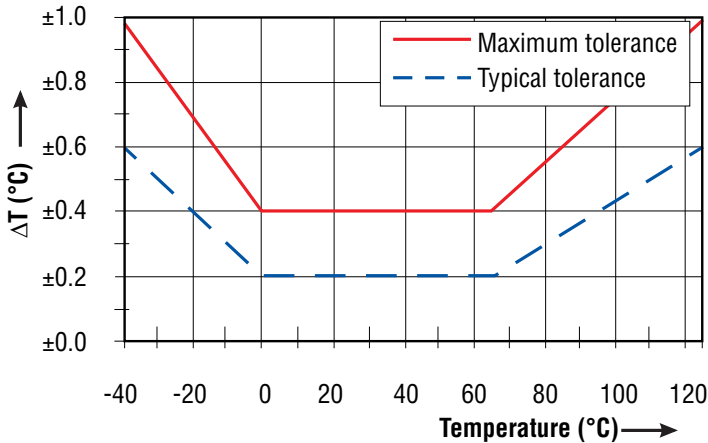
Humidity measurement tolerance



6.1.2 Temperature

Parameter	Condition	Typical	Units
Temperaure accuracy	Typical	±0.2	°C
	Max.	See figure	°C
Repeatability	High	0.04	°C
	Medium	0.07	°C
	Low	0.1	°C
Resolution	-	0.01	°C
Specified range	-	-40 ÷ +125	°C
Response time	τ63%	2	s
Long-term drift	Normal	<0.03	°C/year

Accuracy of temperature measurement



6.2 Functional features

- Sensor protection degree:** IP67 ((protected against dust and against the effects of temporary immersions);
- Air filter:** PTFE air filter with two sealing o-rings and thrust spring;
- Installation method:** Wall mount;
- Electrical connections:** Removable connector with screw terminals;
- Dimensions (mm):** L = 105 mm H= 70 mm e D = 40 mm (the box only, fixing parts excluded);
- Operating temperature:** -30 ÷ +70°C;
- Ambient humidity:** 0 ÷ 100% RH;
- Sensor type:** CMOS;
- Humidity measuring range:** 0 ÷ 100% RH;
- Response time at constant conditions (63%) at 23°C:** 30 s;
- Recovery time from saturation:** 90 s
- Storage temperature:** -30 ÷ +80°C
- Power supply:** 9 ÷ 30 VDC;
- Power consumption:** 40 mA max.;
- RH calibration:** 0% @ 4 mA,
100% @ 200 mA;
- Temperature calibration:** -30°C @ 4 mA,
+70°C @ 20 mA;
- Typical load:** 100 ÷ 200 Ω.

